

Appendix B

Appendix B shows a comparison of the amino acid sequences of the LKR domains of the bifunctional LKR/SDH proteins from Arabidopsis, corn and soybean, SEQ ID NOs: 112, 122 and 121, respectively, and the yeast monofunctional lysine-forming SDHs (gi: 453184, 1170847, and 173262). Amino acids conserved among at least one plant sequence and at least one yeast sequence are indicated with an asterisk (*) on the top row; amino acids conserved among at least two plant sequences are indicated by a plus (+) above the alignment; dashes are used by the program to maximize the alignment of the sequences.

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LKR domain of SEQ ID NO:112  MNSNGHEEEKKLGNGVVGILSETVKNWERRTPLP SHCARLLHGG-KDRTGISRIVVQPS
LKR domain of SEQ ID NO:122  -----CARLLGGGKNGPRVNR IIVQPS
LKR domain of SEQ ID NO:121  -----
GI: 453184                   MA-----AVTLHLRAETKPLEARAALTPTTVKKLIAKG-----FKIYVEDS
GI: 1170847                  MSKS-----PVILHLRAETKPLEARAALTPTSTTKQLLDAG-----FEIYVEES
GI: 173262                   MT-A-----PVKLHLRAETKPLEHRSALTPTTTKRLLDAG-----FEVFEKS

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LKR domain of SEQ ID NO:112  AKRIHHDALYEHVGC EISDD----LSDCGLILGIKQ-PELEMILPERAYAFFSHTHKAQ
LKR domain of SEQ ID NO:122  TRRIHHD AQYEDAGCEISED----LSECGLIIGIKQ-PKLQMI LSPRAYAFFSHTHKAQ
LKR domain of SEQ ID NO:121  -----
GI: 453184                   PQSTFNINEYRQAGAIIVPAGSWKTAPRDRIIIGLKEMPETDTFPLVHEHIQFAHCYKQD
GI: 1170847                  SQSTFDIKEYEAVGAKIVPEGSWKTAPKERIIFGLKELPENETPLIHEHIQFAHCYKQD
GI: 173262                   PLRIFDDQEFVDVGATLVEEGSWVSAPEDRMIIGLKELPE-ESFPLSHEHIQFAHCYKQD

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LKR domain of SEQ ID NO:112  KENMPLLDKILSERVTLCDYELIVGDHGRLLAFGKYAGRAGLVDFLHGLGQRYLSLGYS
LKR domain of SEQ ID NO:122  KENMPLLDKILEERVSLFDYELIVGDDGKRSLAFGKFAGRAGLIDFLHGLGQRYLSLGYS
LKR domain of SEQ ID NO:121  -----
GI: 453184                   AGWQNVLMRFIKGHGTYLDLEFLENDQGRVVAAFGYFAG-----FA
GI: 1170847                  AGWQDVLKRFPQGNGILYDLEFLENDQGRVVAAFGYFAG-----FA

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GGWKDVL SRFPAGNGTLYDLEFLEDDNGRRVAAFGEFHAG-----FA

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LKR domain of SEQ ID NO:112  ++++++ + + ++++++++ + + + + + + + + + + + + + + + + + + + + + + + +
TPFLSLGASMYSSLAARAAVISVGEEIASQGLPLGICPLVFVFTGTGNVSIQAQEIFK
LKR domain of SEQ ID NO:122  TPFLSLGQSHMYPSLAARAAVIVVAEIIATGLPSGICPLVFVFTGTGNVSIQAQEIFK
LKR domain of SEQ ID NO:121  -----
GI: 453184                    GAALGV-RDWAFRQ-----THSDG---EDLP-AVSP---YPNEKAL---VKDVTK
GI: 1170847                   GAAIGV-LDWSFKLNGNTKGTKEGEG---GELP-GVTP---YPNENEL---IKDKVI
GI: 173262                    GAAIGV-ETWAFQO-----THPDS---GELP-GVSA---YPNETEL---VDKIKK

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LKR domain of SEQ ID NO:112  LLPHTFV-EP SKLP ELFVKDKGISQNGISTKR VYQVYGCIIITSQDMVEHKDPSPSKFDKAD
LKR domain of SEQ ID NO:122  LLPHTFV-DAEKLPEIF-QARNL SKQSQSTKR VFQYGCVVTSRDIVSHKDPTRGQFKGD
LKR domain of SEQ ID NO:121  -----EPKDHVIVFDFKAD
GI: 453184                    DYKEKALAT-GARKPTVLV----IGALGRCGSGAIDLV-----HKVGIPDANI LKWDIKE
GI: 1170847                   ELLEKALTKNGGQYPKCLV----IGALGRCGSGAIDLV-----KKIGIPDDNI AKWDMAE
GI: 173262                    DLAARAEVK-CKGKIPTVLV----IGALGRCGSGAIDLV-----KSGVIP EENI I RWDNME

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[illegible]

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LKR domain of SEQ ID NO:112  DIGGSIEFVNRATLIDSPFFRFNPNSNNISYDDMDGGLCMADVILPTEFAKEASQHFQD
LKR domain of SEQ ID NO:122  DIGGSIEFINKSTIERPFRFYDPSKNSYHDDMEGAGVCLAVIDLPTFEKASQHFQGN
LKR domain of SEQ ID NO:121  DIGGSIEFVNRGTSIDSPFFRYDPLTNSYHDDMEGNVICLAVIDLPTFEFAKASQHFQGN
GI: 453184                    NPHNPPIPIYTVATV-----FNKPTVLVTVTGPKLSVI-SIDHLSLLPREASEFFSH
GI: 1170847                   NPHNPPIVPIYETAT-----FNEPTVEVKLGPKPLSVC-SIDHLSLLPREASEFFAK
GI: 173262                   NPHNPVPHVYTIATT-----FDHPTVEVTVTAGPKLSVC-SIDHLSLLPREASEFFSE

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LKR domain of SEQ ID NO:112	+++	+	+++		+++++	+++++	+++++	+		
	ILSGFVGS	LASMTEIS	DLPAHLK	RACISY	RGELTS	LYE-YIP	MRKSN	PE		
LKR domain of SEQ ID NO:122	ILSRLVAS	LASVKQ	PAELPS	YLRACIA	HAGRLT	PLYE-YIP	MRNTM	ID		
LKR domain of SEQ ID NO:121	ILSQFVWN	LASATD	ITKLAHL	RRACIA	HKGVLT	SLYD-YIP	MRSSD	S-		
GI: 453184	DL---	LPSLELL	PQRKTAP	VWVRA-	-----	KKLFD	RHCAR	VKRSSL		
GI: 1170847	DL---	MPSLLEL	PNRDTSP	VWVRA-	-----	KQLFD	KHVAR	LDE---		
GI: 173262	AL---	LPSLLQL	PQRDTAP	VWTRA-	-----	KALFD	KHVLRI	GE----		